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### A study on practice - wise adoption level of the paddy farmers about the recommended biofertilizers practices in paddy cultivation in Vellore district of Tamil Nadu

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#### Abstract

The present investigation was designed to determine the practice wise adoption level of paddy farmers about the recommended biofertilizers practices in paddy cultivation. The study was undertaken in selected six villages at Gudiyattam taluk in Vellore District of Tamil Nadu. A sample size of 120 was fixed for the study considering the limitations of time and other resources. Based on the proportionate random sampling method, one hundred and twenty respondents were identified for the study from selected six villages. Data collection was done with the help of well – structured interview schedule. The data were collected by the researcher by personally interviewing the respondents and the collected data were interpreted and tabulated for appropriate statistical analysis. The results of the study showed that majority of respondents adopted the recommended biofertilizers practices with *Azospirillum* (64.16%) followed by *Cynobacteria* (54.16%), *Azolla* (41.66%), *Phosphobacteria* (25.83%) and *Pseudomonas fluroscens* (05.83%).

**Key words:** Practice – wise Adoption level, Paddy farmers, Adoption, Paddy Cultivation, Biofertilizers practices.

#### Introduction

One of the most significant cereals that is essential to ensuring food security is paddy. Over half of the world's population is fed by it. There are currently 200 million rice farms worldwide that grow paddy; the majority of these are less than one hectare in size. Asia has been cultivating it for several millennia. Asia is a net exporter of rice to the rest of the world, accounting for about 50 per cent of the crop's consumption and growth. China is the leader in the development of hybrid rice technology for commercial use, with India coming in second. India is the country that grows the most paddy and is also the one that produces and consumes the second most paddy. Over the past forty years, our nation has become a major exporter of rice because of science-driven technological advancements and growth-oriented developmental initiatives that have allowed us to achieve sustained self-sufficiency in paddy cultivation. There has never been a change in the food and paddy situation in the nation like this one has in the modern era of agricultural history.

Bio-fertilizers plays an important role in achieving this goal in an Eco-friendly manner by fixing nitrogen, improving the crop growth by production of growth promoting chemicals and improving the nutrient uptake of the crops. Among several

beneficial bacterial genera reported in paddy, *Cyanobacteri*, *Azolla*, *Azospirillum*, *Phosphobacteria*, *Pseudomonas fluroscens* have been widely used as biofertilizers for paddy

crop. Association of phosphate mobilizing fungus *viz.*, *Vesicular arbuscular mycorrhiza* is also used as a bio-fertilizer.

Based on the field experience of the researcher, coupled with discussion with paddy growers and extension functionaries, practice-wise adoption of bio-fertilizer in paddy were enumerated. The respondents were asked to indicate the practice-wise adoptions of recommended biofertilizers practices in paddy cultivation.

#### Materials and Methods

A sample of 120 respondents were considered adequate for the study. The number of respondents from each six village was selected at Gudiyattam taluk in Vellore District of Tamil Nadu by using proportionate random sampling procedure.

*Ex post facto* research design was employed in the research study. A well-structured interview schedule was used for the collection of data with five biofertilizers and eleven biofertilizers practices. Interview schedule was prepared in English. Questions were asked in Tamil by the student researcher to the respondents. Before finalizing the interview schedule, it was pre-tested in a non-sample area to identify the inconsistencies and later necessary changes in the schedule were made. The data collected were processed, coded, and tabulated for statistical analysis. Data were collected during the month of February–March 2021.

**Results and Discussion**

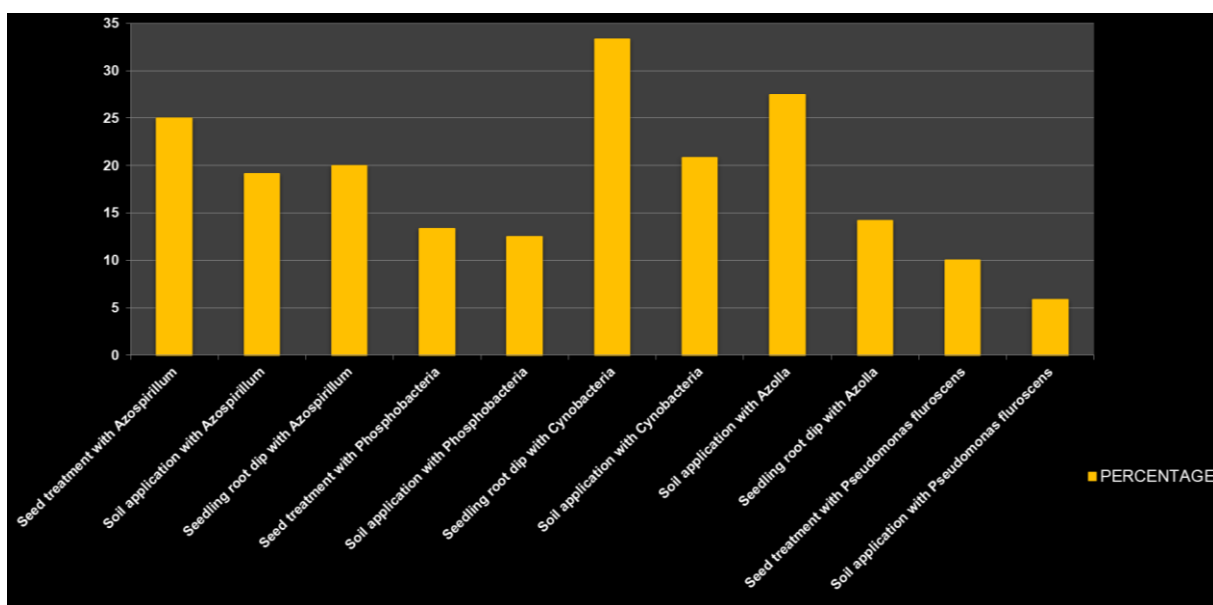
**Practice wise adoption of recommended biofertilizer practices by paddy growers**

As already discussed in materials and methods, eleven

biofertilizers practices were selected for studying the extent of adoption. The results on distribution of respondents according to their practice-wise adoption are furnished in Table 1.

**Table 1:** Practice-wise adoption of recommended biofertilizer practices by the Farmers in paddy cultivation (n=120)

S. No.	Recommended biofertilizer practices	Number of respondents	Per cent
1	Seed treatment with <i>Azospirillum</i>	30	25.00
2	Soil application with <i>Azospirillum</i>	23	19.16
3	Seedling root dip with <i>Azospirillum</i>	24	20.00
4	Seed treatment with <i>Phosphobacteria</i>	16	13.33
5	Soil application with <i>Phosphobacteria</i>	15	12.50
6	Seedling root dip with <i>Cynobacteria</i>	40	33.33
7	Soil application with <i>Cynobacteria</i>	25	20.83
8	Soil application with <i>Azolla</i>	33	27.50
9	Seedling root dip with <i>Azolla</i>	17	14.16
10	Seed treatment with <i>Pseudomonas fluorescens</i>	12	10.00
11	Soil application with <i>Pseudomonas fluorescens</i>	7	05.83



**Fig 1:** Distribution of respondents according to their practice-wise adoption level of recommended biofertilizer practices in paddy cultivation

From the above table 1 and figure 1, it is inferred that majority of the respondents adopted the recommended biofertilizer practices with *Azospirillum* (64.16%) may be due to their educational status, risk orientation, information source utilization, innovativeness was found to have a positive relationship with adoption followed by *Cynobacteria* (54.16%), *Azolla* (41.66%), *Phosphobacteria* (25.83%) and *Pseudomonas fluorescens* (05.83%).

Due to factors such as low educational status, low social participation, lack of interest, lack of visual impact, lack of awareness, and preference for local practices, biofertilizers such as *Pseudomonas fluorescens* and *Phosphobacteria* have a lower adoption rate. This result is consistent with Prithiviraj's (2005) [10] findings.

Based on the individual recommended practice-wise, seedling root dip with *Cynobacteria* (33.33%) has the highest percentage of adoption followed by soil application with *Azolla* (27.50%), seed treatment with *Azospirillum* (25.00%), seedling root dip with *Azospirillum* (20.00%), soil application with *Cynobacteria* (20.83%) and least per cent

as a soil application with *Pseudomonas fluorescens* (05.83%).

**Conclusion**

The main conclusions of this study have some broad implications that could help paddy farmers adopt the recommended biofertilizer practices in paddy cultivation at a higher rate. The adoption of biofertilizers and their practices by paddy farmers was found to be low to medium, with a notable exception being the relatively limited use of biofertilizers such as *Azospirillum* and *Cynobacteria*. This could be the result of low awareness, social participation, medium-to-low mass media participation, and less use of information sources. Therefore, by shaping them with suitable extension strategies to generate awareness and knowledge, the level of awareness and knowledge can be raised. They could also provide in-depth instruction, field trips and demonstrations on the use of biofertilizers in paddy cultivation. Therefore, an analysis of paddy farmers' training needs regarding biofertilizers may be conducted.

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